Government of Saskatchewan

# Annual Report 1984-85

# Saskatchewan Environment

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Government of
Saskatchewan

# Annual Report
# 1984-85

## Saskatchewan
## Environment

## Table of Contents


Page 3 Letters of Transmittal
Page 5 Organization Chart
Page 6 Environment Legislation
Page 7 Department Operational Overview
Page 9 Research and Special Projects Branch Reports
Page 11 Air Pollution Control Branch
Page 15 Water Pollution Control Branch
Page 21 Land Protection Branch
Page 25 Mines Pollution Control Branch
Page 27 Co-ordination & Assessment Branch
Page 31 Information & Communications Branch
Page 33 Administration Branch


## List of Tables


Page 12 Table 1 Urban Air Monitors in Saskatchewan Cities
Page 13 Table 2 Classification of Permits
Page 17 Table 3 Water Quality Sampling Statistics
Page 21 Table 4 Spill Statistics by Product, Number of Incidents and Quantity
Page 21 Table 5 Petroleum Product Spill Statistics by Cause and Number of Incidents
Page 29 Table 6 Projects Requiring an Impact Assessment or Undergoing Screening at Year End
Page 29 Table 7 Projects Screened - Impact Assessments Not Required
Page 30 Table 8 Assessment Process Completed
Page 30 Table 9 Projects Deferred or Cancelled
Page 35 Table 10 Statement of Expenditures and Revenues for the Fiscal Year Ending March 31, 1985

Tim B. Embury
Minister of the Environment

His Honour
Frederick W. Johnson
Lieutenant Governor
Province of Saskatchewan
Regina, Saskatchewan

Dear Sir:

I have the honour to transmit the annual report of Saskatchewan Environment for the period commencing April 1, 1984 and ending March 31, 1985.

Respectfully submitted,

T. B. E.

Tim B. Embury
Minister

Peter S. van Es
Deputy Minister of the
Environment

Honourable Tim Embury
Minister
Saskatchewan Environment

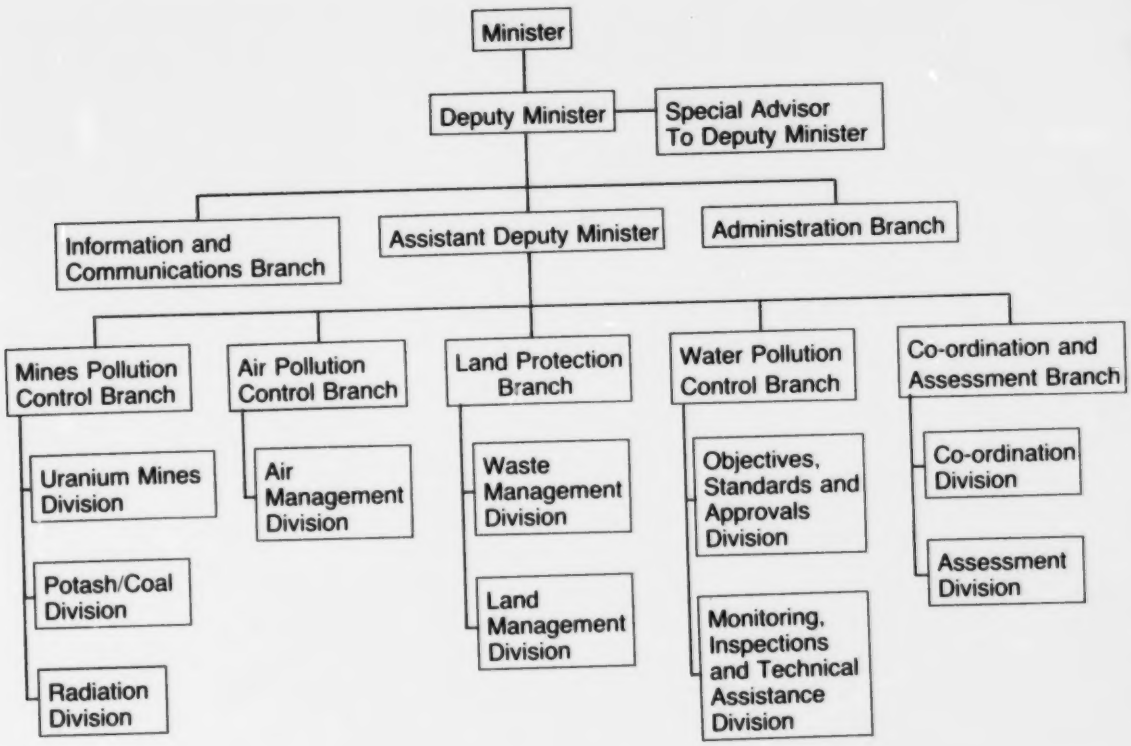
Dear Sir:

I am pleased to present the annual report of Saskatchewan Environment for the fiscal year ending March 31, 1985.

Respectfully submitted,

Peter S. van Es
Deputy Minister

## Organization Chart



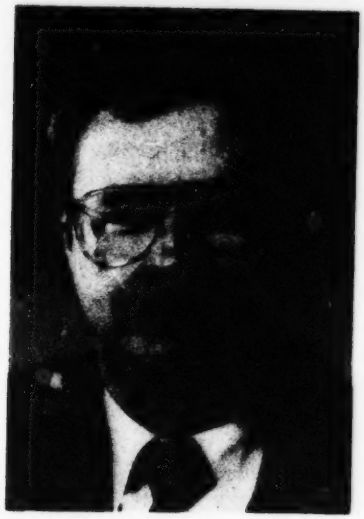
## Saskatchewan Environment Legislation

The Minister of the Environment was responsible for the administration of the following legislation at the end of the 1984-85 fiscal year:

The Department of the Environment Act, 1984*
The Environmental Management and Protection Act*
The Air Pollution Control Act
The Litter Control Act
The Scrap Vehicles Act
The Environmental Assessment Act
The Ecological Reserves Act
The Water Appeal Board Act*

* This legislation was proclaimed effective on July 1, 1984; upon the establishment of the Saskatchewan Water Corporation.

# Department Operational Overview



G. W. Howard
Assistant Deputy Minister

## Department Operational Overview

**Organizational Change**
In recognition of the need to integrate the regulatory, assistance and assessment functions of the department, the position of Assistant Deputy Minister was established during the year. The day-to-day operation of five operational branches is directed by the Assistant Deputy Minister:

— Air Pollution Control;

— Water Pollution Control;

— Land Protection;

— Mines Pollution Control; and

— Co-ordination and Assessment.

**Environmental Protection Model**
Protection and enhancement of Saskatchewan's environment is a complex task and requires the co-operation of the various levels of government, industry and the public. Saskatchewan Environment uses the following model to manage its activities:

— establishment of environmental quality objectives;

— establishment of emission standards;

— licensing of the construction and operation of waste treatment works;

— monitoring and inspections;

— requiring improvements where necessary; and

— enforcement of standards and regulations.

**Management Improvements**
For the first time in several years all director positions were filled. This was achieved by the promotion of Dave Clark to Director of the Land Protection Branch and Bob Walker to Director of Co-ordination and Assessment Branch.

As part of the Regulatory Reform program there was a transfer of responsibility for municipal landfills, liquid waste haulers, and inspections of water and sewage works from Saskatchewan Health to Saskatchewan Environment.

**Poplar River Project**
The Poplar River Project including the power station, mine and water control works is an example of the need for an integrated approach to environmental concerns. The air and water emissions, waste handling and mining are licensed and monitored by various branches of the department. Monitored data are exchanged with federal and U.S. agencies. Each year a joint report is provided to governments.

The Assistant Deputy Minister is responsible for assembling and disseminating Saskatchewan data and is a member of the Canada-U.S. Committee that reviews the data and reports on trends or concerns.

In 1984 the two 300 mW units operated all year. No significant impacts were identified by comprehensive monitoring in Saskatchewan and Montana. Emissions did not result in any violation of Saskatchewan, Montana or United States standards. Water quality objectives for the Poplar River, recommended by the International Joint Commission, were met at all times except for one value of dissolved aluminum.

## Research and Special Projects

H. S. Maliepaard
Special Advisor to the Deputy Minister

## Research and Special Projects

### Regulatory Reform and Productivity Performance

During the period under review, the operation of the department was evaluated and streamlined as part of government's regulatory reform program. To maximize efficiency and effectiveness, all regulatory functions were brought under one umbrella and associated legislation changes implemented. The Deputy Minister's office was strengthened to cope with the increasing demand for policy reviews and development and participation in interprovincial and national activities associated with resolving environmental issues.

### Acid Rain Abatement

To combat the acid rain problems in central and eastern Canada, Environment Ministers decided to investigate the feasibility of increased use by Ontario of Low Sulphur Western Coal. A federal/provincial Task Force was established to study the potential of such an arrangement and to determine its economic and other implications. Saskatchewan Environment participates and co-ordinates activities on behalf of our province and the report is expected by the end of the next fiscal year.

### Toxicology Research Centre

The Toxicology Research Centre, a joint endeavor between the provincial government and the University of Saskatchewan, was in its second year of operation. Saskatchewan Environment is the funding agency on behalf of government and functions as vice-chairman on the Board of Directors. It is gratifying to note the increased services extended by the Centre to government agencies and the rapidly growing demands which are made on the Centre by the medical and academic communities, by the general public, and particularly the agricultural sector. Efforts are under way to increase the scope of Centre activities, acquire and improve facilities and to attract additional funding.

### Canadian Council of Resource and Environment Ministers

The Canadian Council of Resource and Environment Ministers (CCREM) is a vibrant organization which addresses renewable resources and environmental issues, common to several provinces or which are of national significance. The Saskatchewan Environment Minister is the province's senior member on Council and department representatives actively participate in a variety of action programs outlined by the Ministers. Current investigations include the establishment of water quality guidelines, development of approaches dealing with hazardous wastes and toxic substances, as well as developing strategies to deal with the environmental implications of the increased use of chemicals in our present-day society.

## Air Pollution Control Branch

L. J. Lechner, Director

## Air Pollution Control Branch

— maintains a network of ambient air monitoring stations in urban centres;

— issues operating permits to industrial operations to ensure air pollution control standards are met;

— investigates air pollution complaints;

— conducts special studies on suspected problem areas;

— provides technical assistance and information on request;

— drafts guidelines to assist applicants in obtaining permits to operate;

— reviews development proposals and environmental impact studies received from the Co-ordination and Assessment Branch.

## Air Management Division

**Urban Air Monitoring Program**

The provincial Urban Air Monitoring Program operated in five cities during the fiscal year. Table 1 outlines the monitoring equipment which was in operation. Changes to the program included expansion of the data acquisition capability through the addition of an office microcomputer, the addition of an inhalable particulate monitor in Regina and the termination of suspended particulate monitoring in Melfort. Moose Jaw was chosen as the first site for intensive air monitoring in the smaller cities.

Table 1

**Urban Air Monitors in Saskatchewan Cities**

| | Present | Proposed |
|---|---|---|
| Regina | 2 high volume samplers<br>1 inhalable particulate monitor<br>1 sulphur dioxide monitor<br>1 carbon monoxide monitor<br>1 oxides of nitrogen monitor<br>1 ozone monitor | 1 wind speed/direction monitor<br><br>1 hydrocarbon monitor |
| Saskatoon | 2 high volume samplers<br>1 sulphur dioxide monitor<br>1 carbon monoxide monitor<br>1 oxides of nitrogen monitor*<br>1 ozone monitor* | 1 wind speed/direction monitor<br><br>1 inhalable particulate monitor |
| Moose Jaw | 1 high volume sampler<br>1 sulphur dioxide monitor*<br>1 carbon monoxide monitor*<br>1 oxides of nitrogen monitor*<br>1 ozone monitor* | |
| Lloydminster | 1 high volume sampler<br>1 sulphur dioxide monitor | 1 wind speed/direction monitor |
| Estevan | 1 high volume sampler<br>1 sulphur dioxide monitor | 1 wind speed/direction monitor |

*** Provincial monitor — other monitors supplied by Environment Canada**

Air quality indices which summarize annual monitoring data were calculated for Regina and Saskatoon. Individual subindices were determined for each of the major pollutants and were averaged to give an annual overall index. The 1984 values for Regina and Saskatoon were 48 and 30, respectively, which means that overall air quality in the downtown areas of both centres can be described as fair. The 1984 results are comparable to those obtained in previous years. Suspended particulate matter continues to make the largest contribution to the index in both cities. Dust from roads, soil erosion and farming operations are believed to be major contributors to the readings that are obtained.

Increased emphasis will be placed on respirable or inhalable particulate matter in the future. The smaller size fractions have more human health significance and monitoring as well as ambient standards will change as a result. Inhalable particulate monitoring was started in Regina during 1984.

Reports summarizing results from the provincial air monitoring program are published annually and are available from the department on request.

In addition to the urban air monitoring program, the branch monitored air quality in the vicinity of various industrial operations. A number of operations were required to carry out air monitoring as conditions of approval.

**Permit System**

The Air Pollution Control Regulations, which came into effect in 1975, outline the provincial air quality standards and the requirements for an industrial permit sytem. New industrial sources of air pollution require permits from the branch. Existing operations do not require permits unless requested by the Minister of the Environment or unless a significant expansion program is undertaken.

During the fiscal year, 30 new permits were issued and 173 permits were renewed.

Table 2

**Classification of Pemits**

| | New | Renewals | Cancelled |
|---|---|---|---|
| Anhydrous Ammonia Storage Facilities* | - | - | 67 |
| Asphalt Plants | 2 | 37 | 4 |
| Bulk Anhydrous Ammonia Facilities | - | 2 | - |
| Grain Elevators | 19 | 97 | - |
| Gas and Oil Gathering and Treating Facilities | 4 | 6 | - |
| Agricultural Chemical Formulating Plants | 2 | 0 | - |
| Incinerators | 0 | 6 | - |
| Iron Foundries | 1 | 2 | 1 |
| Oil Refineries | - | 1 | - |
| Compressor Stations | 0 | 4 | - |
| Seed Cleaning Plants | 1 | 3 | - |
| Chloralkali Plant | 0 | 1 | - |
| Concrete Batching Plants | 0 | 4 | - |
| Crematoriums | 0 | 1 | - |
| Miscellaneous Industries | 1 | 9 | 1 |
| **Total** | **30** | **173** | **73** |

*** Regulation of these facilities transferred to the Department of Labour**

**Industrial Monitoring Activities**

**Federated Co-operatives Limited, Regina**

The sulphur recovery plant was put into operation by the refinery in the fall of 1984. Since that time ambient sulphur dioxide levels as measured by the company's monitors have decreased substantially. Anticipated improvements to the wastewater lagoon system were not carried out, however, the company plans to install aeration equipment as part of the upgrader proposal.

The odour problems previously experienced have not been rectified and further work is required to identify sources and resolve the problem.

The branch had a number of discussions with refinery personnel regarding sulphur recovery, emission standards/objectives and other aspects of the upgrader environmental impact statement. At year end the final statement had not been prepared, however, air quality concerns will be an area of emphasis in the proposal.

**IPSCO Inc., Regina**

At year end the new baghouse fume control system for furnace No. 5 was in place and awaiting a planned shutdown to tie in the new equipment.

**Poplar River Power Station, Coronach**

The Saskatchewan Power Corporation and the branch conducted ambient air monitoring for sulphur dioxide and suspended particulate matter. Monitoring results showed the plant had a small impact on the levels of these pollutants in the area. Air monitoring data were exchanged with U.S. authorities.

**Armak Chemicals, Saskatoon**
At year end, construction of the odour control incinerator was complete and final testing was to be completed within a couple of weeks. The incinerator is expected to play a major role in resolving the odour complaints previously received from nearby residents.

**Murphy Oil Ltd. Eyehill Thermal Project, Macklin**
The hydrogen sulphide incinerator appears to be operating satisfactorily. The company's consultant was not able to identify any other $H_2S$ sources near the pilot project. No further odour complaints were received.

**Complaint Investigation**
Forty-four air pollution complaints were received by the branch. This represents a decrease of approximately 25% from the previous fiscal year. In general, the complaints centered on odours and dust from operations such as refineries, unpaved roads and grain elevators. In a number of cases, small changes to the operation, additional precautions or changes to operating procedures were or would be sufficient to satisfy the complaint. On the whole, Saskatchewan industries and citizens cooperated with branch requests to eliminate the causes of air pollution complaints. Of the 44 complaints, 12 were resolved during the year, 8 were still under investigation at the end of the reporting period and 10 required further action by industry to correct the problem.

## Special Studies

**Urban Air Monitoring**
During the year an intensive ambient air monitoring program for the smaller cities was started in Moose Jaw. All of the major pollutants were measured for a period of about nine months. A report on the data collected will be prepared in the next fiscal year.

Yorkton will be the next city monitored in conjunction with a National Health and Welfare study into the respiratory health of Saskatchewan school children.

**Acid Rain**
Saskatchewan Environment is a member of the Western Canada Long Range Transport of Atmospheric Pollutants Technical Committee. The committee plans and co-ordinates acid deposition research and monitoring programs for western Canada. An annual report outlining the acid rain activities in western Canada during 1984 is available from the department on request.

A rainfall sampling program in northern Saskatchewan was continued in 1984. Samples of rain events were collected and analyzed from five sites. The levels of sulphate and nitrate (indicators of acid deposition) in the rain were quite low. Further monitoring will be carried out in 1985.

A long-term lake sampling program was initiated in northern Saskatchewan in 1984 in co-operation with Environment Canada. Twenty-two lakes were each monitored once during the summer months.

Preliminary maps of Saskatchewan depicting soils and geology sensitivity to acid precipitation were completed in March, 1983. Discussions have been held with Manitoba to ensure continuity at the borders before the maps are finalized. Discussions with Alberta are anticipated early in the next year. A similar project is under way to produce lake sensitivity maps for the province. It is expected these maps will be completed in the next fiscal year.

## Legislation

**Air Pollution Control Act and Regulations**
A review of The Air Pollution Control Act and Regulations was undertaken and a number of areas requiring updating and modification were identified. Additional ambient air quality standards will be included in the new draft, and changes will be made to the permit system to bring major existing industries under the approval process. Work has begun on drafting the legislation.

**Potash Refining Air Emission Regulations**
January 1, 1985 was the compliance date contained in the province's first air emission regulations which are applicable to potash refineries. At the end of the fiscal year all potash companies were either meeting the standards or planning equipment improvements/changes to bring their facilities in line with the emission limits contained in the regulation.

## Water Pollution Control Branch

D. A. Fast, Director

## Water Pollution Control Branch

— establishes water quality objectives and standards for surface water and ground water;

— establishes design criteria, sets standards, and reviews applications for the construction of industrial effluent works, drinking water works, sewage works and storm sewer works;

— establishes guidelines and standards for the operation of drinking water works, industrial effluent works, and sewage works; sets site specific limits and monitoring requirements for these works;

— provides technical assistance and operator training to communities in identifying process problems, correcting emergency operational problems, and in having qualified operators at drinking water and sewage works;

— collects and interprets surface water quality, ground water quality and related data, processes and stores the data;

— inspects, conducts tests, collects samples, investigates and gathers information or requires the client to do these things for industrial effluent works, drinking water works and sewage works;

— investigates complaints, provides data and expert comment on water quality, pollution control, and drinking water treatment to the public and private, public or government agencies;

— consults with and maintains close touch with agencies such as the Saskatchewan Water Corporation and the Prairie Provinces Water Board (PPWB) on matters that affect water quality;

— controls the application of chemicals used in or near surface water for the control of aquatic nuisances;

— administers a certification program for operators of municipal drinking water and sewage works;

— identifies research requirements on water quality, water pollution, and water treatment; consults with and provides comments to other agencies on their water research programs;

— works with and through other government agencies to ensure transboundary water contaminants do not harm the environment or health in neighbouring provinces, states or in Saskatchewan.

## Objectives, Standards and Approvals Division

**Drinking Water and Sewage Approvals**
During the fiscal year 348 construction approvals and 175 operating approvals were issued by the branch for municipal, private and government works. Construction costs for the facilities were approximately $52 million. At year end, there were 514 and 490 municipal drinking water and sewage systems respectively.

**Industrial Approvals and Inspections**
During the fiscal year, 4 construction permits and 16 operating permits were issued. Site inspections and several meetings were conducted regarding these facilities.

**Prince Albert Pulp Company Limited**
The quality of wastewater discharged from the pulp mill was consistent with past years. There were 27 biochemical oxygen demand excursions during the fiscal year, but no excursions on total suspended solids.

**Saskatoon Chemicals**
The quality of effluent discharged by Saskatoon Chemicals was generally satisfactory with 2 residual chlorine, 4 chromium, 15 alkalinity, and 5 chloride excursions of the discharge limits. The mercury limit was reduced to 6 g/day from 10 g/day in the previous year. This is a major change from the 680 g/day limit in 1970.

**Armak Chemicals Limited, Saskatoon**
The chemical oxygen demand decreased by 11 percent over the previous five year average to 291 kg/day. Ammonia nitrogen loadings increased compared to the previous year and pH control continued to fluctuate.

**CSP Foods, Nipawin**
The company had several pH and ether soluble excursions. Treatment improvements are being made to coincide with the change in the river regime to be caused by the dam near Nipawin.

**SPC Poplar River Power Plant**
Boron and total dissolved solids in the East Poplar River were within the long-term and short-term objectives recommended by the International Joint Commission (IJC). There were no discernible water quality trends from pre-project conditions. Water quality was acceptable, based on the objectives recommended by the International Poplar River Quality Board to the IJC. The rate of ground water seepage from the ash lagoon system was computed to be within the established standards.

**Biocide Regulation**
The branch issued 52 approvals for the application of biocides to public surface water primarily for control of algae and other plant growth. Fifty-five approvals were given for use of 19 other chemicals or mixtures for special applications.

**Surface Water Quality Monitoring**

Water quality trends of Saskatchewan surface waters were regularly monitored. During the fiscal year 1,450 water samples were collected and 33,269 analyses performed. A summary of activities is shown in Table 3.

Table 3

**Water Quality Sampling Statistics**

| | | Samples | Analysis Per Year |
|---|---|---|---|
| Surface Water (Basin) | Qu'Appelle | 186 | 4464 |
| | N. Sask. River | 75 | 2175 |
| | S. Sask. River | 99 | 2475 |
| | Sask. River | 38 | 1520 |
| | Souris River | 20 | 780 |
| | Missouri River | 5 | 240 |
| | Northern Contract | 14 | 560 |
| | Other | 15 | 150 |
| Municipal | Water Chemical | 82 | 574 |
| | Water-Bacti | 11451 | 11451 |
| | Sewage | 30 | 420 |
| | Free Analysis | 301 | 4816 |
| Industrial | Papco, P.A. | 395 | 5925 |
| | Saskatoon Chem. | 459 | 3213 |
| | Armak | 353 | 1412 |
| | CSP Foods | 354 | 1770 |
| | SPC-Boundary | 105 | 630 |
| | SPC-Poplar | 972 | 7776 |
| | SPC-Queen Elizabeth | 22 | 484 |
| | Other | 351 | 1404 |
| | Receiving Stream | 300 | 4079 |
| Industrial (Sask. Env.) | Papco, P.A. | 20 | 480 |
| | Saskatoon Chem. | 10 | 250 |
| | Armak | 10 | 270 |
| | CSP Foods | 10 | 260 |
| | SPC-Boundary | 8 | 368 |
| | SPC-Poplar | 1 | 20 |
| | SPC-Queen Elizabeth | 6 | 90 |
| | Other | 16 | 256 |
| Special Studies | Lake Diefenbaker | 235 | 9289 |
| | M.J. Mercury Control Project | 38 | 266 |
| | Spring Runoff | 74 | 1184 |
| | Complaints | 43 | 172 |
| | Plankton | 20 | 20 |
| | Quality Control | 54 | 1350 |
| | Misc. (including spills) | 60 | 840 |
| | **Total** | **1450** | **33269** |

**Data Management**

A new computer system called WINDAT was designed, programmed and tested. This system will be used to handle information from municipal water and sewage facilities. Other computer systems are in use by the branch to handle water quality data. A total of 98 requests for data or related information were processed for outside agencies, companies and individuals.

**Interagency Activities**

**Mercury in Saskatchewan Fish**

Branch staff chaired an interagency Mercury in Fish Committee, which reviews the results of mercury in fish in provincial waterbodies and makes recommendations to the public concerning fish consumption limits.

**Prairie Provinces Water Board**
A branch representative participated on a committee which is developing site specific water quality requirements for major streams at the provincial boundaries.

**Saskatchewan Water Corporation**
The Water Corporation Act requires the department's review and approval of construction applications for water and sewage works prior to the issuance of a construction permit by the Saskatchewan Water Corporation.

## Monitoring, Inspections and Technical Assistance Division

Ten regions have been established in the province to carry out inspections and sampling at industrial effluent works, municipal water and sewage works and at surface water stations. Five of these regions were staffed during the year.

### Municipal

**Inspections**
A total of 365 visits to municipalities were made by branch staff to inspect water and sewage works and to provide technical assistance.

**Free Analysis Program**
This program is intended to assist communities in monitoring municipal drinking water quality, wastewater quality and the quality of water bodies receiving treated sewage. The program has been expanded to assist with the cost of analysis for the required chemical tests on drinking water, receiving waters and on effluent. During the year, 47% of the municipalities participated in the program.

**Operator Training**
The Operator Training and Certification Committee is comprised of three operators from various areas of the province.

At the end of the fiscal year, there were 214 certified operators for water and sewage works under the voluntary operator certification program. Sixteen training sessions for plant operators were held during the year throughout the province, with a total attendance of over 300.

The branch administered the Western Canada Water and Sewage Correspondence Course for operators of municipal surface water treatment plants.

### Projects

**Wascana Creek Water Quality**
Extensive bacteriological monitoring of Wascana Creek and the Qu'Appelle River in the Lumsden/Craven area was carried out in 1982-84 to assess the water quality and to determine the potential sources of elevated bacteria levels. A report on the study was completed.

**North Saskatchewan River - Prince Albert Area**
A water quality study of the North Saskatchewan River was conducted in 1982-83. A subsequent intensive water quality study was conducted in the fall of 1983 in the Prince Albert area to better determine the local impact of effluents on the river. Reports on the findings of both studies were completed.

**Aquatic Nuisance Control Booklet**
The booklet "A Guide to Aquatic Nuisances and Their Control" was expanded and updated. New sections on pesticide container disposal, mosquito control and weed control in irrigation and drainage ditches were included.

**National Water Quality Guidelines**
The branch is represented on a National Water Quality Task Force. The task force is reviewing existing water quality guidelines and will make recommendations to the Canadian Council of Resource and Environment Ministers (CCREM) concerning national surface water quality guidelines. The task force is also to prepare a report on water research needs. Reports on water quality issues and provincial water guidelines have been completed.

**Sewage Works/Water Works Design Criteria**
In 1968 the Sewage Works and Water Works Design Criteria were published. These guidelines are used to provide consultants and communities with guidelines for the design of water and sewage works. The guidelines are being updated and a draft of the proposed criteria has been distributed to representative clients for review and comment.

**Lake Diefenbaker/Upper South Saskatchewan River**
A comprehensive water quality study of Lake Diefenbaker and the upper South Saskatchewan River started in July, 1984 and is to carry on for one year. The objectives of the study are to provide additional baseline information on the quality of Lake Diefenbaker and upper South Saskatchewan River, to evaluate the water quality in relation to present and future uses, and to identify potential or existing water quality problems. A report on the findings is to be prepared by 1986. The study is a joint effort with Environment Canada.

**Kenosee Lake**
A water quality report has been completed on the Kenosee Lake — Intensive Recreational Lake Study which was conducted in 1979.

**Lovering Lake**
Lovering Lake is a small, high-use recreational lake located northwest of Regina. In response to public concerns over a perceived deterioration in water quality, the branch conducted a water quality survey of the lake in the summer of 1983 and the winter of 1984.

**Mixing Zone Policy**
A review of mixing zone policies and guidelines for effluent discharges was completed and a report is being prepared assessing the implications of adopting and applying such policies in Saskatchewan.

**Saskatchewan River Study Design**
Planning has commenced on an intensive water quality study of the Saskatchewan River. The objectives of the study are to provide additional information on baseline water quality, to evaluate existing and potential water quality problems and to evaluate water quality requirements proposed at the Manitoba-Saskatchewan border. Field work is to begin during 1985.

**Guidelines for Disposal of Municipal Sludge on Land**
Several communities are interested in utilizing agricultural land for disposal of municipal sludge. Draft guidelines have been prepared and are to be finalized in 1986.

**Policy on Municipal Lagoons**
Staff from the branch chaired an interagency committee involving Urban Affairs, Saskatchewan Water Corporation and the Saskatchewan Assessment Appeal Board. The committee has examined issues related to the operation and regulation of municipal sewage lagoons. Procedures and recommendations are being investigated to eliminate duplication, to clarify policies among the agencies and to make sure the remedial measures are implemented at problem lagoons where warranted.

**Sewage Lagoon Problems - Investigative Protocol**
Concerns and complaints are being raised about seepage and discharge from sewage lagoons. The branch commissioned a study to develop an investigative protocol in dealing with such problems.

**Report on Ground Water Concerns at White City**
A report has been prepared on shallow ground water quality at White City. Sewage lagoons at a nearby trailer court and at the village were not found to be causing well contamination at the time but corrective measures to reduce seepage from the lagoons were recommended.

## Land Protection Branch

D. J. Clark, Director

## Land Protection Branch

— develops and administers hazardous waste management programs;

— administers the Environmental Spill Control Regulations;

— co-operates with other departments in investigating and promoting opportunities for recycling waste materials;

— administers the Pesticide Container Disposal Program;

— offers technical assistance to other departments in evaluating proposed waste disposal activities;

— administers The Litter Control Act and Regulations pertaining to beverage containers;

— administers the Reservoir Development Area Regulations;

— develops and administers, in co-operation with other departments, shoreland management policies and programs;

— develops and administers management programs for urban areas subject to severe flooding.

## Waste Management Division

**Spill Response and Control Section**

Saskatchewan Environment is responsible for the enforcement of the Environmental Spill Control Regulations which are designed to safeguard the environment in the event of a spill. The regulations require that spills of pollutants be reported immediately to the department's Spill Report Centre to ensure proper containment, clean-up and disposal of contaminated material.

During the year, the Spill Report Centre received approximately 700 calls. One hundred and ninety-seven of these were to report spills under the Environmental Spill Control Regulations. In addition, the Spill Response Team dealt with numerous complaints and requests for information concerning chemical handling and disposal.

There were over 75 visits made to spill sites to investigate, inspect and supervise remedial measures. Dozens of additional inspections were completed with the assistance of other provincial or municipal officials and emergency response organizations.

Table 4 summarizes the number of spills reported, the product, and the total volume spilled. Similar to past year's statistics, petroleum products account for more than 50% of the total spills. A further breakdown of this category is shown in Table 5.

Other spilled materials classified as non-petroleum products include PCBs, agricultural chemicals, acids and bases, uranium mine process or wastewater and other organic or inorganic chemicals.

Table 4.

**Spill Statistics by Product, Number of Incidents and Quantity**

| Products Spilled | Number of Incidents | Volume Spilled ($m^3$) |
|---|---|---|
| 1. Petroleum Products | | |
| (a) Gasoline | 40 | 208 |
| (b) Diesel and heating fuel | 44 | 283 |
| (c) Asphalt/crude oil | 12 | 142 |
| (d) Used Oil | 2 | 3 |
| (e) Others | 23 | 279 |
| Subtotal | 121 | 915 |
| 2. Non-Petroleum Products | | |
| (a) Agricultural Chemicals | 13 | 2 |
| (b) Acids/bases | 2 | 1 |
| (c) Uranium mine contaminated water | 27 | 165 |
| (d) Other organic/inorganic substances | 20 | 4172 |
| (e) Waste products | 8 | 8500 |
| (f) Miscellaneous/PCB contaminated oil | | (less than 1) |
| Subtotal | 76 | 12840 |
| **Total** | **197** | **13755** |

Table 5

**Petroleum Product Spill Statistics by Cause and Number of Incidents**

| Cause of Spill | Number |
|---|---|
| Above ground tank leak | 6 |
| Below ground tank leak/line leak | 19 |
| Tank overflow | 19 |
| Transportation incident | 44 |
| Equipment failure | 8 |
| Other/unknown | 5 |
| **Total** | **101** |

A few technical studies and investigations were completed for the department or for companies responsible for spills by various consulting firms. These investigations were required as the result of spills. Remedial measures were undertaken to prevent or minimize the contamination of ground water or other potential risks.

**Municipal Waste Section**
**Pesticide Container Disposal Program**
There are approximately one million pesticide containers sold annually in the province. Surveys conducted by the Saskatchewan Safety Council in 1981 and 1982 showed that a large number of these containers were not disposed of appropriately.

In response to numerous requests from concerned groups, the Pesticide Container Disposal Program was initiated in 1983. Approximately 70 per cent of rural municipalities took advantage of the program the first year with the establishment of 170 sites. In a number of cases, urban and rural municipalities joined forces to provide appropriate and accessible sites.

In its initial year of operation over 250,000 containers were crushed and 60 barrels of residue were collected for proper disposal. This past year saw the number of sites increase to 220 with a doubling of containers crushed. Ninety-six barrels of residue were collected during the crushing operation.

**Operation Recycle**
The responsibility for Saskatchewan's scrap vehicle recovery program was transferred to Saskatchewan Environment from the Department of Supply and Services on April 1, 1984. The purpose of the Operation Recycle Program is to encourage the effective use of recyclable components of scrap vehicles and to relieve a disposal program created in rural and urban municipalities.

A system of 180 collection sites has been established throughout the province where vehicles gathered under the program are deposited. These vehicles are then transported to Regina where they are processed at the IPSCO steel mill. Between 13,000 and 15,000 vehicles are processed during each fiscal year.

**Landfills/Liquid Waste Haulers**
Twenty-nine applications for new landfills were processed during the past year. Inspections at 61 existing landfills were carried out. A number of complaints regarding landfill operation and illegal discharges by liquid waste haulers were also handled.

**Litter Control Act**
Complaints under the province's Litter Control Act are also handled by the Land Protection Branch. Approximately 30 complaints were received and acted upon ranging from failure to comply with bottle refund regulations to depositing of refuse on Crown land.

**Industrial and Hazardous Waste Section**
This section continued to provide technical information and assistance to the public, industry and other government departments on proper methods of industrial and hazardous waste management including handling, transportation, storage, treatment, recycling and disposal.

Follow-up of work commenced in 1983 with the Cities of Moose Jaw and Prince Albert in the site investigation and development for proposed landfills.

In co-operation with the City of Regina the department continued its monitoring program of the low-level PCB oil treatment facility located in northeast Regina.

The department continued its program of investigation and evaluation of ongoing waste practices in the province. Site investigation of some 97 active or abandoned landfills within the province was continued. The department continued its efforts in providing advice and assistance in dealing with hazardous materials. Over the year 128 requests for approved disposal procedures were received, from industry, private citizens, public institutions and government. Of this number 12 of the listed materials either have been or are planned for material recycling.

## Land Management Division

### Reservoir Development Area

A Reservoir Department Area is an area of land surrounding a reservoir and designated as such to ensure orderly development of land use around it, and to accommodate the various uses of a reservoir such as power generation, recreation, public uses, cottages and institutional camps.

Revisions to The Water Resources Management Act were drafted to update the Reservoir Development Area Regulations, 1976, and the Recreation (Residential) District Building Regulations, 1969.

To date, seven designated provincial reservoir development areas, containing 5,700 square kilometres have been established. These are Lake Diefenbaker, Blackstrap, Brightwater, Bradwell, Zelma, Dellwood and Avonlea.

During the year the branch issued five development permits at Lake Diefenbaker. Out of five permits issued two were for recreational purposes, two for agriculture purposes and one for residential use. One development permit was also issued for agricultural purposes at Bradwell reservoir.

Division staff provided technical and professional advice to numerous people throughout the province considering development adjacent to water bodies.

Contacts with cottage owners associations and municipalities to implement and update building standards and zoning bylaws for cottage areas within reservoir development areas were undertaken during the fiscal year.

### Subdivision Proposals

Subdivision proposals throughout the province are examined by the division to ensure that development proposals are not subject to soil instability, flooding, or other hazards. These problems are of particular concern to land developments located on hillsides or close to water bodies.

During the fiscal year, 55 shoreland subdivision proposals, 27 country residential subdivision proposals, 48 commercial industrial proposals, 28 proposals for municipal purpose, 28 residential subdivision proposals and 17 other proposals for various purposes were reviewed by division staff. These 203 proposals provided for the creation of 2009 separate parcels for various purposes.

These proposals were referred to the branch by Saskatchewan Urban Affairs and Saskatchewan Rural Development. After reviewing their environmental suitability and possible impact on other nearby uses, the branch provided comments and guidelines to the referring departments.

### Studies

A study of the Lake Diefenbaker shorelands was undertaken during 1984-85. The purpose of the study was to assess the shorelands from the standpoint of erosion and landsliding potential and identify significant natural features and hazards. The study placed particular emphasis on those areas where development is most likely to occur. The results of the study are shown in a final report and also on terrain sensitivity maps.

### Investigations

Investigations carried out on reported shoreland problems included the dumping of debris into lake beds and rivers, overcrowding in shoreland areas, boating conflicts, public access along the water's edge and assessing physical hazards at specific sites.

## Mines Pollution Control Branch

R. R. Sentis, Director

## Mines Pollution Control Branch

— administers a program to control the environmental effects of all mining development through licensing, monitoring and inspections;

— inspects operations and conducts monitoring of effluents and receiving waters at mine sites;

— evaluates the technical aspects of the design and construction of solid and liquid waste management systems and air pollution control facilities at mine sites;

— administers a program to protect the public from unusually high levels of naturally occurring radiation.

### Mines Division

The division is responsible for licensing, monitoring and inspecting all uranium mining operations in the province. Staff visit the sites to perform inspections and take samples in and around the operations. Approvals to construct and to operate the facilities are administered by the branch. In addition, companies are required to monitor all aspects of the environment on a regular basis and submit the data to the division. This monitoring data resulted in more than 20,000 separate water quality analyses being performed. The public has access to all licenses issued and the monitoring data. Branch staff conducted 42 on site inspections of the uranium mining facilities. Ninety water quality samples were taken during these inspections, requiring nearly 3700 analyses.

**Eldor Mines, Rabbit Lake/Collins Bay**
The original Rabbit Lake pit was mined out by April, 1984. Uranium ore from the pit will be used as mill feed until approximately the spring of 1986 when the new Collins Bay "B" zone ore will be phased in.

Completion of the main buttress for the "B" zone dyke and the beginning of overburden removal began in the summer of 1984.

Other construction activities on the Eldor site in 1984-85 included Collins "B" ore storage area and containment ditch construction, expansion of the mill and effluent treatment systems.

**Key Lake Mining Corporation, Key Lake**
The Key Lake Mining Corporation's mining and milling facilities at Key Lake completed its first full year of operation on October 20, 1984.

Paving of the mill terrace and lower crush grind area was completed during the summer of 1984. Problems were encountered in the crushing and grinding operation which required the installation of a semi autogenous grinding mill which was commissioned in February, 1985.

The company installed and commissioned an ion exchange treatment system in the fall of 1984 to accommodate the excess water in storage at the Tailing Management facility as a result of the initial start-up problems and January 5th spill. Treatment of the excess water in storage was completed in January, 1985.

The company will be duplicating the water quality and sediment monitoring stations at Gerald Lake to assess the impact of the January 5th, 1984 reservoir spill.

Construction activities for the development of the Deilmann ore body consisted of installing 15 peripheral groundwater dewatering wells in the north section of the overburden. The removal of overburden from the Deilmann Pitt commenced in the spring of 1985 and will progress as the groundwater table is lowered.

**Amok, Cluff Lake**
Phase II operations at Amok began in August of 1984. Amok continued to mine the underground workings at the O-P zone. The reprocessing of lower grade ore removed during the Phase I gravimetric milling process began with Phase II start-up. Processing of ore from the Claude ore body also was in progress in 1984.

Research and discussion with the mining company and the regulatory agencies concerning the disposal of the leach tailings continued in 1984. The decommissioning of the D pit was also addressed.

Amok continued its exploration program in the general area of Cluff Lake.

**Eldorado Resources Limited, Beaverlodge**
Eldorado Resources Limited's Beaverlodge operation located near Uranium City continued its decommissioning of the mine site. Eldorado expects to have all decommissioning phases complete by June, 1985.

A permanent closeout strategy has been worked out between the company and the regulatory agencies.

### Radiation Division

**Natural Radiation**
Uranium is naturally present in most Saskatchewan soils. To prevent a situation similar to that of Uranium City, the division began a province-wide study to identify areas where the possibility of natural background levels of radiation in the soil are high. The study is expected to take several years to complete.

The first phase of the study was conducted in 16 non-mining northern Saskatchewan communities during the summer and fall. A summary report for public information was released in 1981.

The second phase of the study was conducted in southeastern Saskatchewan communities. The report was published early in 1985.

**Coal Mine Operations**
During the fiscal year the coal mine licensing program was completed. There were five licensed coal operations in the province at the end of the report period.

**Potash Mine Operations**
During the fiscal year all potash mines in the province were licensed under The Department of the Environment Act.

The Northern Affairs Secretariat is responsible for negotiating and issuing surface lease agreements to companies developing uranium resources. The branch works closely with them in developing and implementing sections dealing with environmental and abandonment concerns.

Three agencies, the Atomic Energy Control Board, the federal Ministry of Transport, and Saskatchewan Environment are involved with the transportation of hazardous substances. The Mines Pollution Control Branch assists with inspections and remedial actions for spills of materials to and from mining operations.

**National Uranium Tailings Program**
The National Uranium Tailings Program of the federal Department of Energy, Mines and Resources was initiated in 1983. The five year intensive research program into the long-term management of uranium tailings consists of three components: disposal technology, modelling, and measurement.

The objective of the program is to provide a scientifically credible information base that will assist the government regulatory agencies in making decisions with a degree of confidence, and in establishing criteria for the long-term protection of man and his environment.

Saskatchewan Environment provides representatives to the Senior Advisory Review Board and the Technical Advisory Committee. The purpose of the Technical Advisory Committee is to provide technical advice and assistance to the Department of Energy, Mines and Resources on research projects from start to finish.

The National Uranium Tailings Program is conducting tailing research at Gunnar and Key Lake mines.

## Co-ordination and Assessment Branch

R. E. Walker, Director

## Co-ordination and Assessement Branch

The Co-ordination and Assessment Branch was formed during the 1984-85 fiscal year as a result of the reorganization of the former Environmental Information, Co-ordination and Assessment Service. The branch is responsible for:

— administering The Environmental Assessment Act and The Ecological Reserves Act;

— developing guidelines to ensure protection of the environment during construction and development;

— developing guidelines for impact studies and reviewing of environmental impact statements;

— co-ordinating government review of proposed developments to determine the need for environmental impact assessments;

— co-ordinating government and public participation in the impact assessment and review process;

— assisting developers by identifying and interpreting government regulatory requirements;

— representing the department on interagency and interjurisdictional committees related to multi-disciplinary environmental matters;

— monitoring approved projects to ensure compliance with prescribed mitigative measures and maintain contact with regulatory agencies involved.

**Cold Lake/Beaver River Study**
This study progressed on schedule in 1984-85. The study was initiated by Alberta Environment to evaluate water management options for the Cold Lake/Beaver River watershed due to large amounts of water required for extraction of heavy oil west of Cold Lake, Alberta. Saskatchewan Environment co-operated with Saskatchewan Water Corporation in representing Saskatchewan on the study team. The final report is expected in the summer of 1985.

**Reclamation**
The branch continued liaison with the Saskatchewan Power Corporation and the coal mining companies to ensure that reclamation guidelines are being followed. Reclamation at Coronach and Estevan is proceeding according to schedule.

**Ecological Reserves**
The branch gathered information required for the designation of the first ecological reserves in Saskatchewan. Updates were prepared on draft reports on 10 candidate areas. Of these, two sites have been identified as being ready for designation.

**Heavy Oil Studies**
Saskatchewan Environment maintained its ongoing interest in the environmental aspects of enhanced heavy oil recovery in the Lloydminster area. The department, Saskatchewan Energy and Mines, other agencies, public groups and industry involved in the heavy oil project are co-operatively addressing the unique environmental issues associated with enhanced heavy oil recovery. A comprehensive policy and regulatory framework will be developed to form part of an overall strategy for development of the province's heavy oil resources. The department's principle contribution in 1984-85 was a study commissioned to examine surface water quality and quantity in the Lloydminster area. Regional water availability was examined and current and future water demand by the heavy oil industry and other users projected.

**Environmental Guidelines**
The branch completed a revision of the existing guidelines for collection of environmental data by operators of enhanced heavy oil recovery pilot projects. The guidelines, revised in co-operation with industry and other agencies, seek to ensure that heavy oil pilot projects include study of appropriate environmental issues and environmental protection measures in addition to the other technical matters amongst each project's goals.

The branch initiated discussions with Saskatchewan Agriculture regarding seismic operations on environmentally sensitive Crown lands. Guidelines are being prepared to assist operators to avoid unnecessary disturbance and to repair damage that may occur.

**Project Review and Assessment**
During the fiscal year, 42 new project proposals were received for review by the Co-ordination and Assessment Branch. In addition, 19 active projects were carried over from the previous year. The status of the various project proposals received or under review during the year is as follows:

Table 6

**Projects Requiring an Impact Assessment or Undergoing Screening at Year End**

| Proponent | Project |
|---|---|
| Canadian Occidental Petroleum Ltd. | McClean Lake Uranium Development |
| Cigar Lake Mining Corporation | Waterbury Lake Uranium Development |
| D. M. Wolcott and Associates | Nottingham Gas Project |
| Ducks Unlimited | Foam Lake Wetland Development Project |
| Eldorado Nuclear | Transmission Line - Uranium City to Collins Bay |
| Esso Minerals | Midwest Lake Uranium Mine and Mill |
| Husky Oil Operations Ltd. | Aberfeldy Commercial EOR |
| Husky Oil Operations Ltd. | Heavy Oil Upgrader |
| Mahogany Mineral Resources Ltd. | Mallard Lake Gold Development |
| May & Baker Canada Inc. | Herbicide Plant - Regina |
| Miller, Peter | Placer Gold Mining |
| NewGrade Energy Inc. | Co-op Heavy Oil Upgrader - Regina |
| Potash Corporation of Saskatchewan | Bredenbury Project |
| Red Deer Silicia Inc. | Silica Sand Deposit Development |
| Regina, City of | Waste Management Study |
| Rural Municipality of Hoodoo | Wakaw Lake Weir |
| Saskatchewan Mining Development Corporation | Dawn Lake Uranium Development |
| Saskatchewan Mining Development Corporation | Star Lake Access Road |
| Saskatchewan Mining Development Corporation | Star Lake Gold Development |
| Saskatchewan Power Corporation | Coteau-Brada Transmission Line |
| Saskatchewan Power Corporation | Estevan Thermal Generating Station and Rafferty Reservoir Development |

Table 7

**Projects Screened - Impact Assessments Not Required**

| Proponent | Project |
|---|---|
| C.I.D.L. Projects Ltd. | Steelman Gas Plant |
| Ducks Unlimited | Blackduck Lake Wetland Development Project |
| Ducks Unlimited | Bruno Lake Wetland Development Project |
| Ducks Unlimited | Dixon Wetland Development Project |
| Ducks Unlimited | Egg Lake System Wetland Development Project |
| Ducks Unlimited | Eldersley Wetland Development Project |
| Ducks Unlimited | Fulton Lake Wetland Development Project |
| Ducks Unlimited | Garrison Wetland Development Project |
| Ducks Unlimited | Grill Lake Wetland Development Project |
| Ducks Unlimited | Johnson Flats Wetland Development Project |
| Ducks Unlimited | Kings Lake Wetland Development Project |
| Ducks Unlimited | Mink Lake Wetland Development Project |
| Ducks Unlimited | Mizhashk - Fox Lake Complex Wetland Development Project |
| Ducks Unlimited | Ross Afseth Wetland Development Project |
| Ducks Unlimited | Strawberry Lakes Wetland Development Project |
| Ducks Unlimited | Tway Lakes Westland Development Project |
| Ducks Unlimited | Whitemud Wetland Development Project |
| Ducks Unlimited | Whitkow Complex Wetland Development Project |
| General American Oils Ltd. | Seismic Exploration, Wood Mountain Area |
| Home Oil Co. Ltd. | Manito Lake Oil Exploration |
| Jedgwick Furniture Systems | Wood Furniture Manufacturing Plant |
| Moose Mountain Water Resources Management Board | Kenosee and White Bear Lakes - Increased Water Levels |

**Table 7 continued**

| | |
|---|---|
| Murphy Oil. Co. Ltd. | Eyehill-Unity Pipeline System |
| Oakwood Petroleums Ltd. | Sandhills Gas Well Development |
| Prince Albert Pulp Co. Ltd. | Sawmill Construction |
| Rockglen Ceramics Ltd. | Ceramic Tile Manufacturing Facility |
| Rural Municipality of North Qu'Appelle No. 87 | Resort Road Construction |
| Rural Municipalities of Senlac No. 411 and Manitou Lake No. 442 | Suffern Lake Regional Park Road |
| Saskatchewan Energy & Mines | Oil and Gas Exploration, Grasslands National Park |
| Saskatchewan Highways and Transportation | Highway No. 8 Relocation - Qu'Appelle Valley |
| SaskOil | Dual Pipeline Extension, Cactus Lake - Eyehill |
| Saskatchewan Power Corporation | Gas Turbine Electrical Generation Station - Meadow Lake |
| Saskatchewan Power Corporation | Girard Creek Relocation |
| Saskatchewan Power Corporation | Natural Gas Cavern, Prud'homme |
| Saskatchewan Power Corporation | Transmission Line Reinforcement, Squaw Rapids - La Ronge - Beauval |
| Shell Canada Resources Ltd. | Midale $CO_2$ Flood Pilot Project |
| Westar Petroleum | Seismic Exploration, Moose Mountain Park |

Table 8

**Assessment Process Completed**

| Proponent | Project |
|---|---|
| Saskatchewan Highways and Transportation | Relocation of Highway No. 106 - Big Sandy Area |

Table 9

**Projects Deferred or Cancelled**

| Proponent | Project |
|---|---|
| Bougie Contracting Ltd. | Haul Road - Cluff Lake to Fond du Lac |
| Proponent unknown - handled through law firm | Vegetation Harvesting - Little Manitou Lake |

17 other proposals for various purposes were reviewed by division staff. These 203 proposals provided for the creation of 2009 separate parcels for various purposes.

These proposals were referred to the branch by Saskatchewan Urban Affairs and Saskatchewan Rural Development. After reviewing their environmental suitability and possible impact on other nearby uses, the branch provided comments and guidelines to the referring departments.

**Studies**

A study of the Lake Diefenbaker shorelands was undertaken during 1984-85. The purpose of the study was to assess the shorelands from the standpoint of erosion and landsliding potential and identify significant natural features and hazards. The study placed particular emphasis on those areas where development is most likely to occur. The results of the study are shown in a final report and also on terrain sensitivity maps.

**Investigations**

Investigations carried out on reported shoreland problems included the dumping of debris into lake beds and rivers, overcrowding in shoreland areas, boating conflicts, public access along the water's edge and assessing physical hazards at specific sites.

## Information and Communications Branch

K. J. Sommerfeld, Co-ordinator

## Information and Communications Branch

The branch was formed at the start of the year as a result of an organizational realignment of the former Environmental Information, Co-ordination and Assessment Service.

The branch is responsible for:

— responding to inquiries and providing information on policies, programs and activities of the department;

— facilitating public involvement in environmental assessments and public enquiries through announcements, advertisements and public meetings;

— acting as a resource to individuals, educational institutions and other agencies on environmental information.

**News Releases**
During the year, 23 news releases were prepared by branch staff for distribution to the media. Releases were prepared on spills, the opening of new environment offices, acid rain, the Free Analysis Program and several other programs and issues. Efforts were made to keep the pubic informed of all major events affecting the environment, and the activities of the department in monitoring and protecting it.

**Advertising and Public Announcements**
Newspaper advertising was used to inform the public of proposed developments and to encourage public participation in public reviews of environmental impact assessments.

Public Review and Public Notice announcements were issued on such projects as the relocation of Highway 106, Coteau-Brada Transmission Line, and the Star Lake Gold Development.

**Publications**
Existing information materials continued to be distributed throughout the year. A brochure titled Tomorrow's Environment — It's Up to You was developed and published for public distribution. Reprinting of the Pesticide Container Disposal Program brochure was also completed.

Branch staff continued to co-ordinate publishing of other reports and information material for all branches in the department.

**Pesticide Container Disposal Program**
Branch staff continued the advertising campaign to promote public awareness of the Pesticide Container Disposal Program. The campaign included newspaper, radio and television advertising.

**Operation Recycle**
A communication program which included the development of a logo and site signs for Operation Recycle was initiated by the branch. The development and placement of tender ads for the program was also handled by the branch.

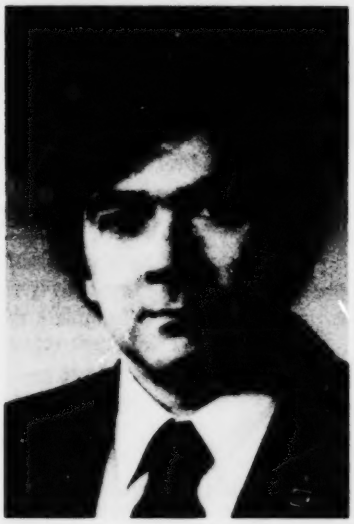
**Clean Machine**
The Clean Machine anti-litter program was managed by the branch during Saskatchewan Enivronmental Appreciation Week on May 7-13, 1984. The purpose of the program is to promote environmental awareness and to encourage people to commit themselves to protecting and preserving the environment.

Information kits were distributed to individuals, groups and organizations inviting them to organize clean-up activities in their communities. Application forms for litter bags supplied by the department were included in the kits.

Approximately 110,000 Clean Machine litter bags were donated to participants. A certificate of appreciation and Clean Machine T-shirts were sent to all participating groups.

Media used to promote the campaign included newspaper, radio and television advertisements. Media outlets were also invited to participate in the program by planning Clean Machine contests. The department supplied Clean Machine T-shirts to contest winners.

## Administration Branch



R. P. Knoll, Director

## Administration Branch

— provides department support services for accounting, purchasing, stenographic, filing, mailing, library, personnel, training, systems and computer operations;

— maintains operations for the Minister's and Deputy Minister's offices;

— provides management advisory services to branches;

— co-ordinates preparation of budget and legislation for the department;

— collects all department revenues.

**Management and Personnel**
The branch provides management advisory services to the Minister, Deputy Minister and all branches in the department in respect to financial, personnel, procurement and systems operations.

The department filled 23 permanent positions during the year. In addition, 35 temporary, casual and part-time appointments were made. Also, 58 positions were transferred from the department to the newly formed Saskatchewan Water Corporation.

During the year, Saskatchewan Environment became a client department of Saskatchewan Agriculture's Human Resources Branch, and discussion took place to transfer the personnel function to that department.

**Accounting and Purchasing**
This section is responsible for all accounting and purchasing procedures for the department. This includes processing expenditures, payrolls, purchase of materials and supplies, processing of travel and sustenance claims, budgeting, inventory control, collection of revenue, and maintenance of departmental accounting records and statements.

All department equipment and supply acquisitions are made through a centralized system operated by this section.

**Records, Postal and Library**
This section provides centralized records, mail and library services to department staff.

Staff receive and deliver incoming mail and process outgoing mail and shipments; maintain the department's centralized records system; and manage the department's Environment Library.

The library subscribes to periodicals and purchases books, reports and pamphlets for the department. The library also obtains inter-library loans, and co-ordinates department staff requests for computer searches.

**Systems and Computers**
The branch continued to co-ordinate computer systems programs in the department and participated in systems studies to improve effectiveness and efficiency of department operations.

Acquisition and installation of 4 microcomputers and 2 word processors were completed during the year. Recruitment of a Systems Co-ordinator for the department was also initiated.

Table 10

**Statement of Expenditures and Revenues for the Fiscal Year Ending March 31, 1985**

Saskatchewan Environment operations are financed from the Consolidated Fund in accordance with a budget approved by the Legislature. Expenditures for the fiscal year ending March 31, 1985 were as follows:

**Expenditures**

| | |
|---|---|
| Administration | $ 793,678 |
| Environmental Information, Co-ordination and Assessment | 938,173 |
| Air Pollution Control | 546,303 |
| Water Pollution Control | 1,284,587 |
| Land Protection | 998,883 |
| Mines Pollution Control | 475,850 |
| Hydrology | 233,509 |
| Water Rights | 225,863 |
| Grants to Organizations for the Purpose of Advising the Minister of the Environment on Environmental Concerns | 283,809 |
| Drainage Control | 184,118 |
| Habitat Enhancement and Protection | 486,099 |
| Grant to the Saskatchewan Water Corporation | 2,910,940 |
| Payments Under the Operation Recycle Program | 1,210,625 |
| **Total** | **$10,572,437** |

**Revenue**

| | |
|---|---|
| The Water Rights Act - fees | $ 1,390 |
| The Ground Water Conservation Act - fees | 355 |
| The Drainage Control Act - fees | 1,425 |
| The Water Resources Management Act - water charges | 118,484 |
| The Water Power Act - rentals | 367,453 |
| Cost-Sharing Programs - Canada | 390,321 |
| Miscellaneous Commodity Sales - Operation Recycle | 858,605 |
| Other Revenue - Foreign Exchange/Expenditure Refunds | 1,648 |
| **Total** | **$1,739,681** |

Saskatchewan Environment collects licence and permit fees under The Water Rights Act, The Ground Water Conservation Act and The Drainage Control Act; collects charges for water use under The Water Resources Management Act and collects rentals for water use under The Water Power Act. Some of these Acts were replaced by The Water Corporation Act while others were transferred to the Saskatchewan Water Corporation on July 1, 1984.

Revenues were also received from other governments for services rendered under cost-sharing programs. These programs were also transferred to the Saskatchewan Water Corporation on July 1, 1984.

On April 1, 1984, the department assumed responsibility for the Operation Recycle Program from Saskatchewan Supply and Services. This program generates revenue when scrap vehicles collected throughout the province are sold to IPSCO Inc.